

**NEW HAMPSHIRE
DEPARTMENT OF EDUCATION
SPECIAL EDUCATION
FOCUSED MONITORING 2014 - 2015**

**Manchester School District
High School Mathematics Summary Report**



**Dr. Debra Livingston, Superintendent of School
Karen Burkush, Assistant Superintendent
David Ryan, Assistant Superintendent
Kenneth Duesing, Assistant Director Student Services**

Technical Assistants:

**Jane Bergeron, M.Ed., Education Consultant
Dr. Edward J. Hendry, Education Consultant
Dr. Joseph Miller, Education Consultant**

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Focused Monitoring Participants

LEADERSHIP TEAM

Name	School/District Office	Title
Karen Burkush	District Office	Assistant Superintendent of Schools
David Ryan	District Office	Assistant Superintendent
Ken Duesing	District Office	Assistant Director Student Services
Jacquelyn McLaughlin	District Office	Special Education Coordinator High Schools
Christopher Motika	West High School	Principal
John Vaccarezza	Central High School	Principal
Arthur Adamakos	Memorial High School	Principal
Karen White	Manchester School of Technology	Principal
Sarah Ambrogi	Board of School Committee Member	Board of School Committee Member
Wendy Perron	District Office	ESL Director
Donna Crook	District Office	Data Analyst
Mary-Jo Bourque	Memorial High School	Asst. Principal
Timothy Otis	West High School	Asst. Principal
MaryAnn O'Leary	Manchester School of Technology	Asst. Principal
William Collins	Central High School	Asst. Principal

ACHIEVEMENT TEAM

District

Name	Title
Karen Burkush	Assistant Superintendent
Kenneth Duesing	Assistant Director Student Services
Jacquelyn McLaughlin	High School Special Education Coord
Wendy Perron	EL Director

Central High School

Name	Title
Will Collins	Asst. Principal Student Services
Adrienne Baum	LD Specialist CHS
Margaret Burke	Special Education Teacher CHS
Mindy Perkins	Special Education BLIL CHS
Lesley Fallu	Math BLIL CHS
Robert Walmsley	Math Teacher CHS
Maureen Anderson	Math Teacher CHS

West High School

Name	Title
Tim Otis	Asst. Principal Student Services
Leo Ducharme	Special Education Teacher WHS
Marianne Steinmetz	Special Education BLIL WHS
Sue Robinson	Math BLIL WHS
Mary Jo Flanders	Math Teacher WHS
Renee Littlefield	Math Teacher WHS
Alicia Moylan	Guidance Counselor

Manchester School Technology

Name	Title
MaryAnne O'Leary	Assistant Principal
Jane Bright	Learning Disabilities Teacher MST
Callan Cardin	Math Teacher MST
Laverne MacInnis	Guidance Counselor MST

Memorial High School

Name	Title
Mary-Jo Bourque	Asst. Principal
Erica Hauck	Special Education Teacher MHS
Kathryn Jaskolka	EBD Teacher MHS
Teri Gatzoulis	Guidance Counselor
Stephanie Dakoulas	Special Education BLIL MHS
Aaron Abood	Math BLIL MHS
Robert Garcia	Math Teacher MHS
Irene Martin	Math Teacher MHS

The Manchester School District

The Manchester School District's mission is:

It is the mission of the Manchester School District, in partnership with the community, to inspire and empower all learners with the knowledge, skills and experiences essential for them to reach their greatest potential.

Manchester School District is the largest district in the state with approximately 14,737 students who are educated in twenty-two schools including: a developmental preschool (ages 3 to 5) in five of the fourteen elementary schools; fourteen elementary schools (grades Kindergarten to 5); four middle schools (grades 6 to 8); four high schools (grades 9 to 12) including a regional School of Technology (grades 10 to 12). Eight of the district's elementary schools are identified as Title I School-Wide schools.

The District is governed by a fifteen member committee that is elected every two years. The Mayor serves as chairperson of the Board. All of the schools provide opportunities for parents to participate at school or from home through parent associations and volunteer groups. Partnerships with the business community are highly valued. Schools enjoy one or more business/education partnerships.

As a community with an increasingly diverse population, the District offers a wide range of programs and initiatives. The English Learner (EL) program serves more than 2,000 students who, as immigrants or refugees, are non-English proficient. The EL program provides English language instruction and offers students assistance with cultural assimilation.

The school district approved a Strategic Plan in January 2015 and two years ago completed a school district audit, conducted by the International Curriculum Management Audit Center. The school district used Focused Monitoring to develop district wide elementary and middle school improvement plans to reduce the achievement gap in mathematics. The plans were aligned with the state accountability expectations.

Focused Monitoring

Focused Monitoring (FM) is a multi-year district improvement process aimed at reducing the achievement gap between students with disabilities and their non-disabled peers while raising student achievement for all students. The purpose of FM is to ensure that children and youth with disabilities ages 3-21 are afforded a Free Appropriate Public Education (FAPE) and are provided opportunities to learn in the Least Restrictive Environment (LRE). FM ensures that students with disabilities have access to, can participate in, and can demonstrate progress within the general education curriculum, thereby improving student learning.

The special education Program Approval team at SERESC is under contract with the New Hampshire Department of Education (NHDOE) to (1) assess the impact and effectiveness of state and local efforts, (2) monitor Local Education Agencies' (LEA) implementation of Individuals with Disabilities Education Act (IDEA) per federal mandate, (3) review current education research with participating districts and (4) provide technical assistance to participating districts.

Districts are selected to participate in FM based on a review of the achievement gap measurement using NECAP assessment data. IDEA guarantees that FAPE is available to each qualified person with a disability who is in the school district's jurisdiction, regardless of the nature or severity of the person's disability. IDEA provides federal funds to assist states in carrying out this responsibility and to comply with the associated regulations. Federal statute 34 CFR Section 300.600 of the IDEA requires that states ensure that local systems comply with these federal regulations and meet the state's academic standards as they provide education programming for students with disabilities. The NHDOE, Bureau of Special Education supervises and monitors local school districts through a variety of activities including, data monitoring, site visits, and FM. The most time intensive and in-depth is FM.

Each participating Focused Monitoring district assembles a Leadership Team that will in turn establish the district's Achievement Team, to be broadly representative of its educational system. The team includes district administrators, general and special educators. The Achievement Team meets regularly to collect and analyze baseline data and new student performance data, both qualitative and quantitative, in order to answer an essential study question. The team produces a set of findings from its analysis of data and prepares an Action

Plan for improvement for implementation the following year. The facilitation and technical assistance of the FM Process provided to the NH FM districts is through the NH Department of Education.

The Manchester School District and Focused Monitoring

The New Hampshire Department of Education (NHDOE) Bureau of Special Education identified the Manchester School District as one of seven Focused Monitoring districts in the state, based on the achievement gap in NECAP results between students with disabilities and their nondisabled peers. It was determined by the Bureau of Special Education that the Focused Monitoring (FM) Process would make multi-year commitment of technical assistance to the Manchester School District.

The NHDOE requested that the FM Technical Assistants assume responsibility for the FM processes and support the District in conducting Root Cause Analysis processes, developing new K-12 school district improvement plans and creating an FM Report, including an action plan.

In 2012 the Manchester School District began a three-year Focused Monitoring process. The achievement gap in mathematics was not being closed in Manchester. By focusing on the achievement gap it was hoped that the District will truly improve the performance for all students in Manchester. During Year 1, 2012-13 school year, the Focused Monitoring process involved working with the elementary schools. A Pre-K-5 Focused Monitoring report and action plan document were prepared and presented to the District Administration and to the Manchester Board of School Committee in June 2013. During Year 2, 2013-14 school year, the elementary schools began implementing its FM Action Plan activities and the focus turned to the Manchester middle schools, who prepared an action plan to be implemented during the 2014-15 school year. Year 3, 2014-15 school year, of the Focused Monitoring process concentrated on the high schools and the Manchester School of Technology.

Manchester High Schools/School of Technology Focused Monitoring Summary Report

This summary report is intended to serve as a record of the work of the high schools' Achievement Team during the 2014-15 school year. The school district identified algebra as a focus area of study and analysis to determine why an achievement gap exists in grades 9-12. The team began the process by reviewing the essential question that will guide the process. Establishing the essential question for study purposes was important because the question generated multiple plausible answers, perspectives, and research directions and provided opportunities for analysis, synthesis, and evaluation. The question established was:

What educational strategies/practices need to be modified, enhanced, or replaced to ensure system alignment of instruction, curriculum, and assessments to all student subgroups so that all students are fully engaged in the algebra curriculum and demonstrating growth in their mathematics knowledge?

This report provides responses to the essential question. It contains specific recommendations based on findings that will help focus the District's work on addressing the identified factors that impact student achievement in the high schools and the School of Technology. The document is intended to be a synthesis of what the Achievement Team has accomplished. The report includes an improvement plan with clear goals,

research-based interventions and action steps to achieve the goal of narrowing the achievement gap between students with and without disabilities.

Manchester High Schools/Manchester School of Technology and Focused Monitoring

Getting Started

During the 2014-15 school year the Focused Monitoring process progressed into the Manchester High Schools and the Manchester School of Technology that service students in grades 9-12.

At an initial meeting in **October** a group of high school teachers, specialists, and district and school administrators met to:

- Gain an understanding of the Focused Monitoring process, role of the Leadership and Achievement Teams and the Inquiry Process
- Discuss the “Essential Question” that will guide the Focused Monitoring Process in the Manchester High Schools/School of Technology
- Review a summary of the work of the Focused Monitoring Process in the Manchester Elementary and Middle Schools
- Review NECAP data for Manchester High Schools by conducting a Data Driven Dialog
- Identify school based mathematics programs, initiatives and instructional supports for students in the high schools.
- Identify potential causes for achievement gap in algebra

Initial Data Probe Activity

Four years of high school math achievement records were presented and discussed at the Achievement Team’s first meeting. The discussion included potential questions as well as assumptions on attributing causes and the following patterns observed:

- Second semester increase in failures
- First semester sees more withdrawals than second semester. Are students moving levels, and if dropping down a level, are students now doing well?
- Increase in the number of Cs in second semester over first; are some students taking reassessments to bring up failing grades?
- Largest percent of grades equal Cs, is this related to turning in assignments or taking reassessments?
- Larger percentage of failures in Algebra Skills than in Algebra 1
- Almost double the rate of failures in Math 1 (Note, Math 1,2,3 is the equivalent of earning Algebra credit, not doing the Algebra standards)
- Research shows little to no relationship between ACT and grades; high correlation between attendance and grades
- How many students are failing multiple courses, as opposed to just Algebra?
- Take Algebra by the semester, so if you fail second semester, you have to wait until the following spring to repeat it, may be difficult to retain information from first semester over time
- West did not see a gender difference, but Memorial did, with boys failing more frequently than girls

- Data includes students repeating freshmen, not just initial 9th graders, so filtering data for first time freshman would be important
- Being able to filter students with disabilities would also be important
- Social promotion - what proportion of middle school students have failed math prior to high school enrollment?
- Mobility rate - what impact does it have?
- Students erroneously maintained on class lists even if no longer in class but in alternative placements, this should not be happening
- Do students in level 1 have poorer attendance than those in levels 2 and 3?
- Discussion on lack of motivation. Different from middle school where the consequences are not as severe (i.e., in high school, failing the class equals no credit)
- Lack of real world connections
- Learning is sequential - if you change schools, if you are absent, etc. it is harder to catch up than for other courses
- Lack of technology -- we are not using what students are using "not speaking their language"
- Some only see math as something required for college, not for other careers
- Need for differentiated instruction to meet needs and use hands on activities
- Cookie cutter approach - not everyone needs the same skills

Potential Causes for Achievement Gap in Algebra (perceptual data)

At the first meeting the Achievement Team (AT) was asked to answer the following question: From your perspective, what is the cause of the achievement gap in algebra for students with disabilities in the Manchester School District? The AT was then asked to organize the "causes" of the gap and to create affinity maps of the brainstormed list of potential "causes". Based upon an analysis of the affinity maps the AT identified the following potential causes of the achievement gap.

- Students unmotivated for the subject
- Fear of math, belief they cannot do well, acceptance that it is okay to not do well in math
- Scattered skills, missing concepts, lacking a solid foundation, missing basic facts
- Other potential contributing factors to poor performance:

Lack basic skills, poor attendance (which may be established early on in school career), large class sizes - struggling students may need more individualized attention, students don't understand the need for Algebra. Will hide that they can't read, they openly admit they can't (won't) do math. The connection is missing as to what Algebra is needed for. Still missing basic skill sets, need more interventions at earlier age. Are discouraged by high school from struggling so long. High schools want to see interventions happening at a much earlier age before they give up. Don't have math people working in elementary schools - may be taught by people weaker in math or who struggled in math, may be focusing more on literacy. Lack of parental support or parents who have difficulty with math, parental acceptance that they all have trouble with math.

Getting Ready for Inquiry

November: To begin the process at looking for potential causes of the gap the Achievement Team (AT) read articles on barriers impacting students with disabilities learning Algebra: *Strategies for Teaching Algebra to Students with Learning Disabilities*; and *Making Research to Practice Connections Teaching Algebra to Students with Learning Disabilities*

After small group discussions some observations were shared with the AT:

- Teachers may unintentionally reinforce learned helplessness and perpetuate math difficulties
- How we assess students may impact grades, memory may be an issue, may have weaknesses following procedures even if they understand concepts
- Real world application will look different in different settings. How can classroom teachers employ all the strategies?
- Difference between computational skills and problem solving skills; using graphic organizers likely a helpful tool
- “Equity not equality” giving skills to move forward with procedures even if basic facts continue to be a problem
- Peer tutoring sometimes successful in some classes, sometimes not, and not in all classes
- Algebra is not a requirement for graduation in all states was an eye-opener
- Content foundations noted in article fluency, application of concepts, conceptual knowledge of geometry and measurement are areas that should be the focus in this FM study
- Cognitive barrier processes (executive functions), content foundations, and Algebra concepts noted in article as causes of failure
- Steps of explicit instruction students vary in ability and understanding at different points. Use of the continuum of instruction listed in article useful in instruction and spiraling back between steps listed
- Universal design and multiple means of representation (manipulatives, virtual manipulatives) are important at high school level just as it is at younger levels (along with multiple means of expression, multiple means of engagement)
- High School math teachers may be lacking the background in Special Education, may be teaching lower level skills than the levels of Math they were trained to teach; Special Education teachers may be lacking sufficient Math content background to provide appropriate supports
- Backtracking lower skills in a course may not be feasible due to timeline demands of curriculum
- Lack of testing in middle school to appropriately place students in math courses and levels. Only 8th grade Algebra students take an assessment to determine whether to move to Geometry or not
- Importance of getting to know students. How can teachers employ strategies in classrooms? Do we need to know more about the students before they start? Do we need to know more about student achievement in the 3 domains (fluency, application of concepts, conceptual knowledge) before they start Algebra?

At a subsequent meeting the AT was asked to conduct a Special Education Math Lesson Accessibility Activity. Small groups formed with at least one math teacher and one special education teacher with a template to complete regarding a specific algebra lesson. Each group reviewed a student (identified or typical) who is having difficulty in math and came up with some strategies for instruction and accommodations to enable students to be successful.

Some teachers are using strategies which help all students learn and are used as practice for the whole class. Each group reported out. Some groups selected a student with disabilities; others selected a non-identified student. Teachers presented the problem students were having and generated ideas to support the students.

Discussion & overall themes from the activity:

- Teachers from different disciplines look at instruction through different lenses, so direct observation of each other's classes may elicit more ideas about how to meet needs
- Are students having difficulty just in math class or other classes as well? Helpful to determine if it is specifically
- A math issue (or something particular to the one class setting) or an issue which impacts multiple settings and activities that helps to focus solutions on a more specific or a broader problem
- Collaboration and open lines of communication between special education staff and general education staff is valuable and accommodations are important for many students, not just students with disabilities

Collecting, Organizing and Analyzing Data

In **December** the AT members broke up into groups, by school, and were asked to design a process they could undertake to investigate a possible solution to the achievement gap, especially for students with disabilities, in algebra. To start the process each group was asked to identify an achievement gap-reduction strategy they wanted to investigate. The strategies generated were:

1. How might we redesign our group work skills for freshmen, in order to succeed in Algebra? (West)
2. How might we create a way to help students in Algebra increase math vocabulary? (West)
3. How do we redesign the Algebra 1 experience for our first year students so they can achieve competency in Algebra 1? (MST)
4. How do we provide support and interventions for all students who are not ready for high school Algebra? (Central)
5. How do we develop cooperative learning skills? (Memorial)
6. How do we develop resources for re-teaching for support for all students (Rtl)? (Memorial)
7. How can we redesign the transition process to support teachers so they have the critical information and resources to effectively design instruction for each student? (Admin)

In **January** the schools were asked to brainstorm solutions to the question they generated in December. The following solutions were posted by each school:

West (#4): Create a summer Algebra prep class, involve MCC as community partner. Continue freshman forum class. Co-teach with English, EL, Sped, etc. to collaborate on activities. Improve student placement in courses. Use technology, create a math lab, games, Kahn Academy, etc. Picked creating a Math Lab as the one to focus on.

Memorial (#4): Use self-paced computer program. Share what works and doesn't work. Double up with math for students lacking basic skills. Include use of math materials to improve fluency. Picked development of an 8th grade test that focuses on 3 domains fluency, fractions, and aspects of geometry. Right now only students in grade 8 Algebra take a placement test for high school, not all math students.

Central (#4): Develop math lab, reinstitute and redesign placement test, build a bank of instructional strategies, consider changing 9th grade schedule for students who have not had success in Math fewer courses, perhaps extra math period, so adjust to and can devote more time to work in fewer classes. Placement test the strongest focus.

MST (#3): Create a self-paced curriculum. Create individual learning plans for each student, which type of materials to use, different types of enrichment for faster paced students, interventions for students who have difficulty. Goal for everyone to take Algebra 1 instead of Algebra Skills. Place to start would be creating the curriculum for the course.

Admin (#7): Create clear course descriptions, clear competencies for each, align placement of students appropriately. Establish PD around supporting that. Student fact sheet common format, systematic, meeting between middle school staff and high school staff to discuss students, what materials are needed, getting materials in time. More thorough/useful IEP development. Focus on student fact sheet.

In groups, the schools were asked to develop a “prototype” of their solution using a Prototype Template handout (See Appendix 1). After completion, each school was asked to present the idea to a different group for feedback. Schools were then asked to complete the prototype solution template before the February AT meeting.

In **February** the AT members described their solutions steps under taken since the January meeting:

Central: Create a mathematics lab for a small group of students. Identify 10 students currently taking algebra who are struggling and provide them with an extra math period. The math lab may involve computer based learning, peer tutoring, and instruction from both general and special education teachers. It will focus on vocabulary and other prerequisite skills. The math lab could be staffed during a teacher’s duty period. They will also look at revising the old placement test to focus on prerequisite skills, with an idea to administer it to 8th grade students in order to identify specific skills needs. Supports and interventions will be based on the results of the assessment.

District Administration: Create a student profile sheet to aid in the transition process. The plan would include assessment data and a student reflection identifying strategies that are successful and not successful in helping the student learn. The middle school teacher would meet with the student to develop the plan in the spring. The high school teacher and student would meet in the fall to review the plan.

MST: Create a self-paced class with integrated projects. The teacher would provide individual interventions based upon the student’s progress. Students would be assessed individually according to their rate of progress, which allows for flexible placements for moving to geometry. Teacher instruction is supplemented by online videos.

Memorial: Run a math lab for 9th grade students struggling in algebra. Use self-paced lessons in the lab. Use math teachers to staff the lab during their duty period. Develop a placement test for all students (currently it is only administered to 8th grade algebra students). Rename course in the program of studies.

West: Create a math lab, focusing on fractions. Administer a pretest in the fall, then take classes to the lab to focus on needed skills identified in the test. Following work in the lab, administer a posttest and analyze results to determine the effectiveness of instruction in the lab.

The School teams worked to design the next steps, including creating a time line and assigning responsibilities for items. Teams used the *Test in Theory Plan* and/or *Test in Practice Plan* as a template to guide their work.

Each school updated progress with the entire Achievement Team:

Memorial: Created an assessment tool. They will collaborate with Central and West to further develop. They will administer to students currently in Algebra Skills and Algebra 1 classes prior to March FM meeting. They will interview students regarding their thinking about the test.

West: Created a fractions assessment, including basic skills and application problems. They will distribute and collect feedback. They will administer to Algebra Skills and Algebra 1 classes in March.

MST: They will tweak management of current self-paced geometry class, to allow for more time for direct instruction.

Central: They began working on an assessment tool. Will schedule time with building administration to review and finalize assessment.

District Administration: They created a My Math Path student profile sheet. The profile includes a place to list assessment data, student reflection, and teacher comments. Prior to the March meeting we will share with building level administrators and teachers to gather input about other information that may be included on the profile.

In **March** and **April** each high school finalized and investigated a plan to test their solutions to identified problems.

Developing and Implementing a Plan to Assist in Reducing the Achievement Gap in High School Algebra

At the **May** meeting the focus was to review the results of each high school's first small scale test. What evidence did each school collect? What worked? What did not work? What needs to be changed before testing the idea again?

During the reviews each school was asked to consider the following operational and technical feasibility issues:

People – as you spread the solution throughout the system (e.g. department, school, district) will training be required? What capabilities need to be developed among staff? Which skills will need further development for this to be successful?

Systems and Stuff – as you spread this solution throughout the system what will be needed in terms of facilities, technology, or specific materials?

Stakeholders – who are the key stakeholders that will need to support this solution for it to be successful (e.g. school or district leaders, students, parents, board members, community)? Why might these stakeholders support this solution? Why might they NOT support this solution?

Intangible or Cultural Factors – Are there other factors that may impact success of this solution (e.g. past efforts, backgrounds of students and parents, community engagement)? What can be done to overcome these?

Based upon the reviews each school was asked to develop an Action Plan for the 2015-16 school year that included a process for improvements and re-planning for another “solutions test”; and for scaling up or spreading the solution to a wider audience. Components of each of the plans included a schedule for implementing, monitoring, and evaluating the proposed solution during the school year.

Each plan provides an opportunity for the schools to implement an educational strategy/practice associated with the essential question presented in the fall of 2014: *"What educational strategies/practices need to be modified, enhanced, or replaced to ensure alignment of instruction, curriculum, and assessments to all student subgroups so that all students are fully engaged in algebra and demonstrating growth in their algebra knowledge?"*

Manchester School District 2015-16 Action Plan

The Focused Monitoring Action Plan is intended to describe the specific Goals, Objectives and Strategies that will be implemented as a result of the yearlong FM Planning Process. This strategic process serves as ‘roadmap’ for advancing the learning for all students while projecting the specific strategies that will address the achievement gap between students with unique learning challenges and abilities and their peers. The plan is designed as a document that can be reviewed and revised as necessary throughout the implementation year. Each high school has developed an action plan unique to their school needs.

District Office Action Plan

STRATEGIES/ ACTIVITIES	ESTIMATED RESOURCES Budget, Human Resources, Materials	PERSON(S) RESPONSIBLE Leader and Participants	TIMELINE Begin/End	MONITORING OF IMPLEMENTATION Evidence (What & By Whom/When)	EVALUATING RESULTS Evidence of Effectiveness (What & By Whom/When)
1. Meet with middle school principals to share the HS FM work group information	Principals' Meeting during school day \$0	Focused Monitoring Achievement Team work (FMAT) group	May/June 2015	FMAT work group June 2015	Meeting Minutes
2. Distribute draft student profile to middle school & high school Math teachers (using Google Survey tool)	Google Drive \$0	FMAT work group	May/June 2015	FMAT work group (by 6/30/15)	Draft profile document and survey results
3. Review survey results, and revise student profile draft; create guidance for implementation; and distribute for principals to review	Google Drive and Meeting during school day \$0	FMAT work group	June 2015	FMAT work group (completed by 6/30/15)	Survey Results Revised Draft of Student Profile Guidance for Implementation
4. Principals will review plan with Math faculty (or all faculty)	Meeting during PLC time OR Principal hours \$0	FMAT work group	September-November 2015 (depends on Principals' PD schedule)	FMAT work group (Must be completed by 11/30/15)	Meeting Agenda and/or Minutes
5. Complete the Math Path profile (8th grade students working with Math, Special Education & EL faculty)	Use class time and prep. time to complete \$0	Math, Special Education & EL faculty will collect data as part of regular transition process	December-January 2016	FMAT work group	Completed Student Profiles

6. Implement use of student profiles during course selection AND transition meetings (in spring)	Use during regularly scheduled transition meetings \$0	Math, Special Education & EL faculty will implement as part of regular transition process	February 2016 AND Spring (on-going)	FMAT work group	Completed Student Profiles AND guidance on implementation
7. Assess the intervention by surveying users to analyze impact	Google Drive and Meeting during school day \$0	Principals, Math, Special Education & EL faculty	Fall 2016	FMAT work group	Survey Results and Summary of Impact

Manchester Central High School Action Plan

GOAL: By June 2016, an intervention system will be in place for ninth grade students who are not proficient in the skills identified on the Algebra Readiness Assessment

OBJECTIVE # 1) Identify the students using the Algebra Readiness Assessment

2) Provide remediation using one of the following methods: Math Lab, Peer Tutoring, and/or Summer Math Academy

STRATEGIES/ ACTIVITIES	ESTIMATED RESOURCES Budget, Human Resources, Materials	PERSON(S) RESPONSIBLE Leader and Participants	TIMELINE Begin/End	MONITORING OF IMPLEMENTATION Evidence		EVALUATING RESULTS Evidence of Effectiveness	
				What & by whom	When	What & by whom	When
Administer assessment to students in Algebra IA, Pre-Algebra, Algebra 1 L2.	Paper One class period Time: one period to administer; 4 hours per teacher for scoring	Administration of assessment: Math Teachers Scoring of assessment: Team of math teachers, special educators, and administrators	Sept 2015	Focused Monitoring Team	September 2015	Data from test scores collated by Math BLIL	October 15, 2015
Develop curriculum modules	Teacher time	Robert Walmsley with Focused Monitoring Team input	June 2015/ October 2015	Focused Monitoring Team	June 2015/ October 2015	Ongoing student progress and results of post-test	June 2016
Offer tiered intervention to students based on data from assessment: (Students scoring as Beginning on 1 or more categories) a) Math Lab: 2 periods week for two sets of students Mods A,B,C; 8-10 students per period alternating M/W; T/TH; Pass/Fail credit	½ time certified math teacher; 5 computers;	Hiring: District and Central High School Administration Communication to Students and Parents: John Vaccarezza, CHS Principal Oversight of the lab: Lab Teacher/ BLIL/Focus Monitoring Team	Sept 2015- June 2016	Focused Monitoring Team	ongoing	Post-test mastery of category/Lab Teacher	ongoing

Offer tiered intervention to students based on data from assessment: (Students scoring as Developing on 1 or more categories) b) Tutoring	Tutor training program; teacher to oversee the program; reserved area for tutoring	Focused Monitoring Team	October 15, 2015-June 2016	Focused Monitoring Team	ongoing	Post-test mastery of category	ongoing
Administer assessment to students in grade eight	Time for Focused Monitoring Team to score assessments		January 2016				
Offer tiered intervention to students based on data from assessment (Students scoring as Beginning on 1 or more categories): c) Summer Math Academy	In proposal		July 2016				

Manchester School of Technology Action Plan

GOAL: TO INTRODUCE ONE INQUIRY BASED LEARNING ACTIVITY PER UNIT

OBJECTIVE: TO ALIGN PROJECT BASED LEARNING WITH THE MEASURABLE STUDENT LEARNING GOAL

STRATEGIES/ ACTIVITIES	ESTIMATED RESOURCES Budget, Human Resources, Materials	PERSON(S) RESPONSIBLE Leader and Participants	TIMELINE Begin/End	MONITORING OF IMPLEMENTATION Evidence		EVALUATING RESULTS Evidence of Effectiveness	
				What & by whom	When	What & by whom	When
Reconfigure Curriculum Delivery	Current MST Budget	Administration Teachers	9/2/2015 TO 6/16//2016	Increase in collaboration between academic and CTE teachers by dividing into three teams throughout the school. Have both academic and CTE teachers on each team. Teams meet weekly to develop one common inquiry based learning activity. Have a math, science, English and history teacher on each team.	Teachers Attend Weekly	Written Evaluations By Students	Monthly
					At Least One Admin Attends Bi-Weekly	Monitoring Attendance	Monthly
						Monitor Competency Achievement By Teachers And Administration	Bi-Weekly

Manchester Memorial High School Action Plan

STRATEGIES/ ACTIVITIES	ESTIMATED RESOURCES Budget, Human Resources, Materials	PERSON(S) RESPONSIBLE Leader and Participants	TIMELINE Begin/End	MONITORING OF IMPLEMENTATION Evidence		EVALUATING RESULTS Evidence of Effectiveness	
				What	By Whom	What	By Whom
Peer Tutoring in Algebra I, Algebra IA, or Pre-Algebra. Peer tutors will be recruited for each of the 8 periods of the day	Hire Peer Tutor - \$2500 stipend	Peer Tutor Coordinator	September 2015 - June 2016	#Tutors #Classes #Students	Coordinator	Algebra Failure Rate	FM Team Admin Guidance
Math Teachers as study teachers vs, cafe duty etc.	Based on staffing and ability to schedule	Administrator	September 2015 - June 2016	#Students	Teachers	Student Grades	FM Team Admin Guidance
Continue to use assessment in targeted classes	Test, Classroom Teachers, Hours	Math BLIL/ Classroom Teachers	September 2015 - June 2016	Results	Math BLIL	Results	Same
Scheduling Math Resource, Math Studies, Low Level Math Courses A-F	Based on staffing and ability to schedule	Administrator/ Math BLIL	September 2015 - June 2016	Math Courses by Math BLIL/Administrator		Course size and periods by Math BLIL/Administrator	

Professional Development	Classroom visitations and paid time to develop resources for remediation	District Admin	September 2015 - June 2016		
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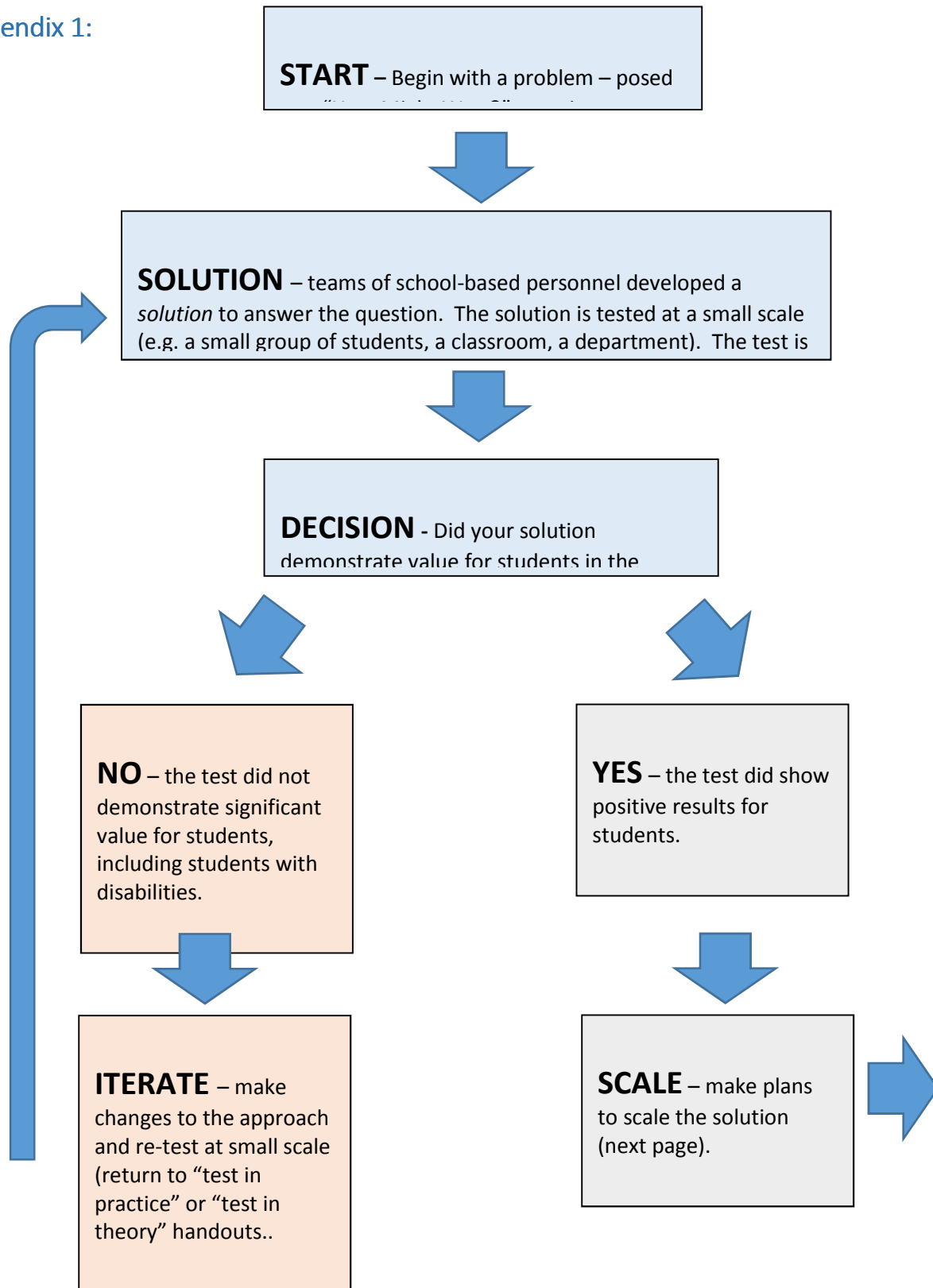
Manchester West High School Action Plan

Goal: Identify Freshman weakness of fractions and provide support/intervention to increase the success in manipulation of fraction skills.

STRATEGIES/ ACTIVITIES	ESTIMATED RESOURCES Budget, Human Resources, Materials	PERSON(S) RESPONSIBLE Leader and Participants	TIMELINE Begin/End	MONITORING OF IMPLEMENTATION Evidence		EVALUATING RESULTS Evidence of Effectiveness	
				What & by whom	When	What & by whom	When
Revise the Fraction Frenzy assessment; create the Frenzy 2 test to be given at end of 1st quarter; Create a rubric to score	Computer, paper, paid time; FM allocated \$2500 for West	Team members and Tim Otis, AP	FM-3hrs on 6/22 or 6/23 PD days	Tim Otis, AP	6/23	scored results	Fall 2015
Give test to all Alg 1 and Alg 1A; grade only the freshmen	paper, pencils, Rosters, printer, class time	Math teachers of chosen classes	within first 2 weeks of school	Team members and Tim Otis, AP	9/14	evaluate/score results	9/15 wkshp day
Identify the Freshmen test group-keep it small, like 5 students	data, team time, access to aspen	team members and Tim Otis,AP	9/15/2015	Tim Otis, AP	9/15	Aspen schedule-is lab available for their schedule	9/15
Create a Math Lab room 212 (prior math office) or designated room in library if remodeled into classrooms	Teacher assigned duty 2 days a wk in the lab; computers chromebooks manipulatives; money; created activities, tables, chairs, earbuds,	Motika to approve room and resources and teacher coverage	9/1/2015	Tim Otis, AP	by 8/25	Team members will inspect to determine if ready to go!	9/2

	folders, file cabinet						
Math teachers to be assigned lab duty 2 days wk-	math teachers	Motika-remove teachers from office duty and use for LAB (best for kids!)	9/2/2015	Tim Otis, AP	9/1	Check teachers schedules	9/1
Create curriculum modules; activity folders for fraction work	workbooks, worksheets, computer websites, games, manipulative center; pencils, pie charts, measuring tools;paid time to develop	Team Members and Tim Otis, AP	before the identified group is identified	Team members and Tim Otis, AP	9/18	Folders are done! A variety of instructional tools and resources are in the room, ready to go!	9/18
identified students would be assigned lab time 2 day/week	schedules, periods lab available; teachers on duty; guidance to schedule; create aspen code for schedule, ie: ML study	Math teachers would determine the who..guidance would amend the schedules	by the 3rd week of school	Tim Otis, AP schedule check	3rd week of school	students identified have new schedules indicating lab days	by 3rd wk of school
students engage in various fractional activities	LAB period 2 days a week	Lab teacher attendance and participation	3rd week of school to end of quarter	Math Lab teachers and Tim Otis, AP	end of 1st qtr.	Administer the Fraction Frenzy 2 test	end of 1st qtr.
Evaluate results of FF2	Team members and PD time	Team members	11/10/2015	team members and Tim Otis, AP	11/10	Team observations, data results and analysis	11/10
Determine the next steps to the plan	PD time for team member; data	Team members and Tim Otis, AP	2nd qtr. through end of semester 1	Team members and Tim Otis, AP	2nd qtr	Team observations, data results and analysis	end of sem 1

Appendix 1:



SPREAD – what would it take to spread the idea throughout your school and eventually across the district? See SPREAD worksheet.

Step #1a – Operational and technical feasibility.

- What human skill changes are needed?
- What tools or infrastructure is needed?
- What stakeholder support is needed?

Step #1b – Viability

- Can the idea be scaled up without disrupting it?
- What are the costs?

Step #1c – Challenge

- What is the biggest challenge you will face in scaling this idea?

Step #2 – Make a plan

- What are the goals and milestones?
- What is the timeline (e.g. when will training happen, will the solution be phased in, etc)?

Step #3 –Sharing the Idea

- How will you share the idea?
- What is the problem and why? What is your solution? Can you tell about what it looked like when it worked?
- Consider the “SUCCEsS” model for communicating your message.

Step #4 – Showing Success

- Once the idea is scaled up, what measures should be used to demonstrate success?